Review of Proposed Rule (15 August 2014) to designate critical habitat for the western distinct population segment of the yellow-billed cuckoo (*Coccyzus americanus*)

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This review is the form of answers to the supplied questions as follows:

1. Are the Service's descriptions, analyses, biological findings, and conclusions accurate, logical, and supported by the data and information in the proposed rule; especially in regards to the species' biology and habitat use?

In the Proposed Rule, the Service has provided detailed and accurate descriptions of all aspects of the biology and habitat use of the western distinct population segment of the yellow-billed cuckoo (hereafter in this document called the western yellow-billed cuckoo) such as current and historical geographic distribution and preferred elevation range; seasonal movements; preferred habitat types including vegetation species, and canopy configurations and extent; home ranges and minimum habitat size requirements for breeding, dispersal, and movement corridors; nesting biology and phenology; nest microhabitat site requirements according to humidity and temperature tolerances; and foraging behavior including preferred prey species and prey preferences regarding vegetation species and habitat structure, and microhabitat conditions. Their analyses and conclusions are logical and well-considered, and are strongly supported by robust scientific research, extensive population surveys, and other exhaustive studies in the field that span many decades.

2. Have we accurately described the biological or ecological requirements of the species? Is the scientific foundation of the proposed rule fundamentally sound? Can the scientific foundation be strengthened, and if so, how?

The Service has accurately explained the biological and ecological requirements of the western yellow-billed cuckoo and has provided substantial evidence to support their descriptions. These data are based on decades of extensive field research comprising point surveys; quantification of prey use and abundance; monitoring of active nest sites; quantifying microclimate; comparison of occupied versus unoccupied habitat; extensive analyses of vegetation types and density; and radio

telemetry to determine home range size and breeding densities. One such study on the South Fork Kern River in California was conducted for 17 years, thus, providing remarkable insight into the biological and ecological requirements of nesting and foraging western yellow-billed cuckoos. Field studies of this magnitude and longevity are rare in the scientific literature.

The authors' focus on the habitat requirements of the western yellow-billed cuckoo is extensive. They accurately define and succinctly describe three primary constituent elements required by the species for successful reproduction, sustenance, and dispersal: (1) riparian woodlands, (2) adequate prey base; and (3) dynamic riverine process. Furthermore, they provide additional criteria regarding these elements which should be taken in consideration for the long-term conservation of both the western yellow-billed cuckoo and its preferred habitat, such as conditions required for successful germination and regeneration of riparian vegetation; vegetation densities required for cover and shelter, particularly for protection from predators when nesting or along movement corridors; and negative implications and impact of common invasive plant species, in particular *Tamarix*, on nesting yellow-billed cuckoos. Thus, the scientific foundation of the Proposed Rule with regards to the biological and ecological requirements of the western yellow-billed cuckoo is sound, and requires no additional augmentation.

3. Are there instances in the proposed rule where a different, yet equally reasonable and scientifically-sound conclusion might be drawn? If any instances are found where this is the case, please provide specifics.

The authors base their assessments of the biological and habitat requirements of the western yellow-billed cuckoo on numerous robust surveys comprising many thousands of hours of field work over decades of study; there is no doubt that their conclusions regarding the cuckoos' ecological needs are valid. Moreover, they provide convincing evidence that the western yellow-billed cuckoo is an obligate riparian species that must have sufficiently-large tracts of intact riparian habitat in order to forage, roost, and reproduce, without which it will fail to survive. Moreover, the authors have provided substantial evidence that such riparian habitat within the geographic range of the western yellow-billed cuckoo is under significant threat of degradation and destruction from numerous and wide-ranging factors including (1) alterations to the hydrology from upstream dams, surface diversions, ground-water withdrawals, and fluctuating reservoir levels; (2) floodplain encroachment due to agricultural, residential, or industrial development, bank stabilization, gravel mining, and construction of roads, bridges, and levees; and (3) other habitat threats such as recreational use, overgrazing, woodcutting, and pesticide use that reduces prey populations. Without a doubt, the protection of riparian habitat is of critical importance to the survival of the western yellow-billed cuckoo. There are no instances in which a different, yet equally reasonable and scientifically-sound conclusion may be drawn.

4. Do the proposed critical habitat units cover the appropriate areas for the species and they sufficient in number and extent? Should areas that are not currently occupied by the species be included as additional critical habitat?

The authors propose to designate 80 units of critical habitat for the western yellow-billed cuckoo in nine states in the western and southwestern United States. These units all fall within the geographic range occupied by the western yellow-billed cuckoo at the time of listing and encompasses what can be considered as the "breeding range" of this distinct population segment based on breeding records collected between 1998 and 2012. This is a reasonable and valid assessment of the geographic area overall where the western yellow-billed cuckoo would be expected to occur if sufficient and intact critical habitat exists.

More specifically, and at the landscape level, the authors have selected to designate these 80 sites within the overall breeding range of the western yellow-billed cuckoo because they encompass important criteria representing features essential to the conservation of the species. All river segments selected contain three primary constituent ecological elements: (1) preferred riparian woodland habitat, (2) adequate prey base, and (3) dynamic riverine processes. This decision, in itself, will contribute substantially to the hope of recovery of the western yellow-billed cuckoo once critical habitat conservation measures are in place.

In establishing critical habitat, it is crucial to consider all aspects of the species' life history and its concomitant ecological requirements. Although the overall geographic range of the western yellow-billed cuckoos has been determined by breeding records, the authors have rightfully chosen to designate critical habitat units based on (1) areas where the species currently nests or has known to nest since 1998, and (2) areas that are intermittently used by the species for other critical activities, including movement, dispersal, foraging, and connectivity. The authors have determined that restricting the designation of critical habitat to confirmed breeding sites would not provide a sufficient means for the conservation and recovery of the western yellow-billed cuckoo because (1) some breeding habitat that is not currently suitable will become suitable in future; (2) the species needs habitat areas that are arranged spatially to maintain connectivity and allow dispersal within and between units; and (3) food resources change both within and between years, and additional habitat is needed to accommodate this change. This argument is valid and can be substantiated by the best scientific information available (see references listed on page 48555 right column of the Proposed Rule).

These criteria are also taken into consideration when selecting designated units according to their size and extent of critical riparian habitat. Based on decades of field research, the authors have concluded that western yellow-billed cuckoos require strips of habitat greater than 100 meters in width for normal behavior and to mitigate detrimental edge effects, and typically have home ranges during the breeding season in excess of 40 hectares. Ecological studies have suggested that larger tracts would be more likely to encourage nesting and foraging success; therefore, the authors have identified critical habitat units with blocks of preferred riparian vegetation greater than 81 hectares in extent and 100 meters in width. This decision should facilitate productive

western yellow-billed cuckoo breeding behavior and provide some opportunity for future population expansion.

When designating critical habitat, it is also important to assess how the ecological, life history, and habitat requirements of a species may be reflected through the future evolutionary life of the species. The authors have also taken this into consideration in the Proposed Rule. The western yellow-billed cuckoo exists in disjunct breeding populations; thus, the authors insist that critical habitat units must be sufficient in number and extent to maintain stability of these subpopulations, and to provide connectivity between them in order to foster gene flow, which preserves and augments essential genetic diversity within the species. Loss of genetic diversity in fragmented and dwindling populations is a fundamental concern for species recovery. Furthermore, they dictate that critical habitat units must be sufficiently numerous and geographically-widespread to mitigate catastrophic loss in the event of localized stochastic incidents that could cause damage to the habitat or populations residing there.

In short, the authors have clearly selected appropriate critical habitat units where western yellow-billed cuckoos currently occur or may be likely to occur within a reasonable time perspective should population numbers increase. Because the species has such specific habitat requirements, it is unlikely that they will be found in unsuitable habitat that is not designated. Thus, the authors have logically excluded habitat in areas that have not been associated with western yellow-billed cuckoo habitation in recent decades.

5. Are the proposed exclusions appropriate? Are the proposed exclusions sufficiently protected and managed to provide habitat for the species?

First and foremost, the authors are excluding areas of historical western yellow-billed cuckoo breeding habitat beyond the jurisdiction of the U.S Fish and Wildlife Service, such as western Canada and Mexico. In addition, they are generally excluding from consideration large portions of the Pacific Northwest where the species has been extirpated for some time; for example, the species has not bred in Oregon and Washington for approximately 90 years, and individuals observed in these states are most likely accidentals or birds in transit. On the landscape scale (as mentioned above in Question 4), preferred habitat patches that are too small to sustain a mated pair of western yellow-billed cuckoos or are too distant from adjacent patches to foster connectivity through typical movements are also being generally excluded.

Within the 80 proposed critical habitat units (the combined size of these units being 221,094 hectares), the authors are considering for exclusion 29 specific areas totaling 79,777 hectares. They base this consideration for exclusion on two criteria: (1) the value of the habitat unit/area for conservation will be preserved for the foreseeable future by existing protective actions, or (2) they may be appropriate for exclusion under the “other relevant factor” provisions of section 4(b)(2) of the Act. There are no exclusions proposed based on national security impacts.

The majority of the critical habitat units considered for exclusion are so deemed because a land management or conservation plan is currently in place (1) that generally provides an equal or greater level of protection from adverse modification or destruction of critical habitat; (2) where there is a reasonable expectation that conservation management strategies will be implemented; and (3) that provides conservation strategies consistent with currently accepted principles of conservation biology. Among these critical habitat units considered for exclusion are many areas that overlap with designated critical habitat for the endangered southwestern willow flycatcher (*Empidonax trailli extimus*), which also occurs in riparian zones. There is some suggestion that management actions for the willow flycatcher will benefit the western yellow-billed cuckoo and, as such, specific designation for the yellow-billed cuckoo may be unnecessary. The ecological needs of a species can be elusive and highly specific; the authors rightfully note that further assessment of these species' habitat compatibilities should be considered prior to a final proposed exclusion of these sites. Moreover, it follows that other critical habitat units proposed for exclusion (in which there is already a management or conservation plan in place to safeguard riparian habitat) should be given due consideration to ensure that these plans encompass features essential to the conservation of the western yellow-billed cuckoo prior to making the final proposal for exclusion.

Several areas of critical habitat considered for exclusion currently have no management or conservation plans in place (for example, Unit 15: AZ-7 and Unit 46: NM-1) or have been issued an incidental take permit (for example, Unit 21: AZ-13 and Unit 22: AZ-14) which would likely result in the reduction of riparian habitat stock and the concomitant decline in reproductive success and survivorship of western yellow-billed cuckoos in those areas. Prior to proposing that these areas be excluded, it may be important to assess if any future destruction or degradation of riparian habitat under these circumstances will result in a notable decline in local western yellow-billed cuckoos populations, and if these declines will represent a loss of genetic diversity that is critical for maintaining viable populations.

The total acreage of the areas considered for exclusion represents a sizable portion (approximately 36%) of the total acreage of the proposed critical habitat units. It is imperative to the survival of the western yellow-billed cuckoo that the future trajectory of these lands with regard to their use, conservation and/or restoration, be duly scrutinized before they be excluded from designated critical habitat.

6. Did the Service accurately describe the analyses, studies, and literature that are referenced in the proposed rule, and did the Service use the best available science to support its assumptions, arguments, and biological conclusions? If any instances are found where the best available science was not used, please provide the specifics.

The Service has accurately described the analyses, studies, and literature that are referenced in the Proposed Rule, and has used the best available science to support its assumptions, arguments, and biological conclusions in all cases. The criteria that have been used are based on fundamental and

well-accepted principles for conserving species and their habitats. There are no instances where the best available science is not used.

7. Are there any significant peer-reviewed scientific papers that the proposed rule omits from consideration that would enhance the scientific quality of the document? Please identify any such papers.

There are no significant peer-reviewed scientific papers that have been omitted from the Proposed Rule.

8. Are there parts of the proposed rule that need additional detail or explanation? Are there parts that are superfluous, or that could be condensed?

The Proposed Rule succeeds in providing all necessary information in a logical and succinct manner, and requires no further augmentation or abridgment.

9. Are scientific uncertainties clearly identified and characterized, and are potential implications of the uncertainties for the technical conclusions clear?

The authors have made an excellent case for the definition and designation of critical habitat for the western distinct population of the yellow-billed cuckoo for which there are no scientific or technical uncertainties.